

CLAIMS

What is claimed is:

- 1 1. A completion system for production of hydrocarbons from a formation
2 surrounding a wellbore, the completion system comprising:
3 a completion assembly for disposal into an annulus of a wellbore, the
4 completion assembly defining a flowbore therewithin for flowing of cement and
5 hydrocarbons;
6 a valve assembly incorporated within the completion assembly having a
7 flow port that may be moved between a substantially opened position and a
8 substantially closed position to selectively provide fluid communication between
9 the flowbore and the annulus;
10 a mandrel incorporated within the completion assembly and containing a
11 cylinder for selective placement of a gas lift valve; and
12 a gas lift valve shaped and sized to reside within the cylinder of the
13 mandrel.
- 1 2. The completion system of claim 1 further comprising:
2 a landing collar incorporated within the completion assembly for seating of
3 a wiper plug; and
4 a wiper plug to be disposed within the flowbore of the completion
5 assembly for cleaning of excess cement from components making up the
6 completion assembly.

1 3. The completion system of claim 1 further comprising a packer
2 incorporated within the completion assembly to assist in anchoring of the
3 completion assembly within the wellbore.

1 4. The completion system of claim 1 wherein the valve assembly comprises:
2 a generally tubular mandrel;
3 a flow port within the mandrel;
4 a frangible rupture disc within the flow port for initially closing the flow port
5 against fluid flow; and
6 an outer sleeve surrounding the mandrel and being moveable between a
7 first position, wherein the flow port is substantially open to fluid communication,
8 and a second position, wherein the flow port is substantially closed to fluid
9 communication.

1 5. The completion system of claim 2 wherein the wiper plug comprises:
2 a shaft having a nose portion;
3 a wiper disc affixed to the shaft and having radially extending portion to
4 contact the flowbore and wipe excess cement therefrom.

1 6. The completion system of claim 5 further wherein the wiper plug further
2 comprises a centralizer secured to the shaft.

1 7. The completion system of claim 5 wherein there is a plurality of wiper
2 discs.

1 8. The completion system of claim 7 wherein at least one of said plurality of
2 wiper discs is located as a leading wiper disc set proximate the nose portion and
3 at least one of said plurality of discs is located as a trailing wiper disc set
4 proximate a rear portion of the shaft.

1 9. The completion system of claim 2 wherein the landing collar presents a
2 landing profile that is formed to receive a nose portion of the wiper plug.

1 10. A completion system for production of hydrocarbons from a formation
2 surrounding a wellbore, the completion system comprising:

3 a completion assembly for disposal into an annulus of a wellbore, the
4 completion assembly defining a flowbore therewithin for flowing of cement
5 downwardly therethrough and hydrocarbons upwardly therethrough;

6 a device for cleaning excess cement from the completion assembly; and

7 a gas lift valve that can be operably associated with the completion
8 system after flowing of cement through the flowbore.

1 11. The completion system of claim 10 wherein the device for cleaning excess
2 cement from the completion assembly comprises a wiper plug to be driven
3 through the flowbore.

1 12. The completion system of claim 10 wherein the device for cleaning excess
2 cement from the completion assembly comprises a valve assembly incorporated
3 within the completion assembly having a flow port that may be moved between a
4 substantially opened position and a substantially closed position to selectively
5 provide fluid communication between the flowbore and the annulus.

1 13. The completion system of claim 10 further comprising a packer assembly
2 to aid in securing the completion assembly within a wellbore.

1 14. The completion system of claim 10 further comprising a shoe track
2 proximate a lower end of the flowbore.

1 15. The completion system of claim 11 further comprising a landing collar
2 incorporated into the completion system for landing of the wiper plug within the
3 completion system.

1 16. A method of completing a subterranean well for gas lifted fluid extraction
2 comprising the steps of:

3 a. positioning within a well bore a production tubing string having at least
4 one mandrel assembled within said tubing string;

5 b. displacing cement through a flow bore of said tubing string into a
6 wellbore annulus around a portion of said tubing string below said mandrel;

7 c. perforating said tubing portion and surrounding cement to admit
8 formation fluid flow into said flow bore;

9 d. charging said wellbore above said cement with pressurized gas; and,

10 e. admitting said pressurized gas into said flow bore through said
11 mandrel to extract fluids from said formation.

1 17. A method of completing a well as described by claim 16 wherein said cement
2 is displaced through said at least one side pocket mandrel.

1 18. A method of completing a well as described by claim 16 wherein said cement is
2 displaced by pressurized well working fluid driven behind a cement wiper plug.

1 19. A method of completing a well as described by claim 18 wherein said well
2 working fluid behind said wiper plug substantially removes cement remaining within said
3 mandrel.

1 20. A method for production of hydrocarbons from a formation proximate a
2 wellbore comprising the steps of:
3 disposing a completion assembly into a wellbore, said completion assembly
4 having a flowbore defined therewithin;
5 pumping cement through the flowbore of the completion assembly to fill a
6 portion of an annulus surrounding the completion assembly;
7 closing a lower end of the flowbore against fluid flow;

8 cleaning excess cement from the completion assembly;
9 opening a portion of the completion assembly so that hydrocarbon fluids from the
10 formation may enter the flowbore; and
11 assisting production of said hydrocarbon fluids from said flowbore using an
12 artificial lift pump.

1 21. The production method of claim 20 wherein the step of closing a lower end of the
2 flowbore further comprises landing a wiper plug within the flowbore.

1 22. The production method of claim 20 wherein the step of cleaning excess cement
2 from the completion assembly comprises disposing a wiper plug through the flowbore to
3 wipe excess cement from components of the production assembly.

1 23. The production method of claim 20 wherein the step of cleaning excess cement
2 from the completion assembly comprises selectively circulating working fluid through
3 the flowbore and into the annulus.

1 24. The production method of claim 23 wherein the step of selectively circulating
2 working fluid through the flowbore and into the annulus further comprises rupturing a
3 rupture disc to substantially open a flow port in a valve assembly.

1 25. The production method of claim 24 wherein the step of selectively circulating
2 working fluid through the flowbore and into the annulus further comprises sliding a
3 sleeve member to block fluid flow through the flow port.